

WHAT IS CLAIMED IS:

1. A positive-working chemical-amplification photoresist composition which comprises, as a uniform solution in an organic solvent:

(A) 100 parts by weight of a copolymeric resin consisting of from 50 to 85% by moles of (a) hydroxyl group-containing styrene units, from 15 to 35% by moles of (b) styrene units and from 2 to 20% by moles of (c) acrylate or methacrylate ester units each having a solubility-reducing group capable of being eliminated in the presence of an acid; and
(B) from 1 to 20 parts by weight of a radiation-sensitive acid-generating agent which is an iodonium salt containing a fluoroalkyl sulfonate ion having 3 to 10 carbon atoms as the anion.

2. The positive-working chemical-amplification photoresist composition as claimed in claim 1 in which the solubility-reducing group capable of being eliminated in the presence of an acid is selected from the group consisting of tertiary alkyl groups, 1-alkoxyalkyl groups and acetal groups.

3. The positive-working chemical-amplification photoresist composition as claimed in claim 2 in which the tertiary alkyl group is *tert*-butyl group.

4. The positive-working chemical-amplification photoresist composition as claimed in claim 1 in which the component (B) is an iodonium salt compound containing a nonafluorobutane sulfonate ion as the anion.

5. The positive-working chemical-amplification photoresist composition as claimed in claim 1 in which the copolymeric resin as the component (A) has a weight-average molecular weight in the range from 3000 to 30000.

6. The positive-working chemical-amplification photoresist

composition as claimed in claim 1 which further comprises:
(C) an amine compound selected from the group consisting of secondary amines and tertiary amines in an amount in the range from 0.001 to 10 parts by weight per 100 parts by weight of the component (A).

7. The positive-working chemical-amplification photoresist composition as claimed in claim 1 which further comprises:
(D) a carboxylic acid compound, a phosphorus-containing oxo acid compound or a derivative thereof in an amount in the range from 0.001 to 10 parts by weight per 100 parts by weight of the component (A).

8. The positive-working chemical-amplification photoresist composition as claimed in claim 1 which further comprises dimethylacetamide in an amount in the range from 0.1 to 5.0% by weight based on the amount of the component (A).

9. The positive-working chemical-amplification photoresist composition as claimed in claim 1 in which the hydroxyl group-containing styrene unit as the monomeric unit (a) in the component (A) is a hydroxystyrene unit.

10. The positive-working chemical-amplification photoresist composition as claimed in claim 6 in which the amine compound is a tertiary alkanolamine.

11. The positive-working chemical-amplification photoresist composition as claimed in claim 7 in which the carboxylic acid compound is an aromatic carboxylic acid.

12. The positive-working chemical-amplification photoresist composition as claimed in claim 7 in which the phosphorus-containing oxo acid compound is phenylphosphonic acid.